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CEE, CSA and UL Standard models are not equipped with a Voltage Selector or Cycle Conversion switch. Therefore, voltage and cycle conversion is not necessary. If your machine corresponds to any of these standards, please disregard all references to voltage and cycle adjustments throughout this manual.

CEE Models: 220V, 50Hz.

CSA Models: 120V, 60Hz.

UL Models: 120V, 60Hz.

I. GENERAL INFORMATION

I- SPECIFICATIONS

Track System	4-track 4-channel (2-channel) compatible stereo
Max. Reel Size	7"
Tape Speed	7-1/2 and 3-3/4 ips $\pm 1\%$
Wow/Flutter	0.12% RMS at 7-1/2 ips 0.15% RMS at 3-3/4 ips
Frequency Response	50 Hz to 22,000 Hz (± 1 dB at 7-1/2 ips; 3040 to 15,600 Hz ± 2 dB at 3-3/4 ips)
S/N Ratio	Better than 60 dB
Distortion	Less than 1.5% (1/2 ip; 1,000 Hz; -10" VU recording)
Hum Ratio	Better than 100 dB
Equalization	Correct equalization for playback of tapes recorded on 2-A-B curve
Recording Bias Frequency	100 kHz
Recording Level Indicator	2 twin type VU meters
Heads	Two 4-track 4-channel stereo heads for recording and playback Two erase heads (3-track and full track)
Fast Forward & Rewind	75 seconds at 60 Hz (1,200 ft. tape) 90 seconds at 50 Hz (1,200 ft. tape)
Output Jacks	4 Line Output Jacks Output Level: 1.23 V Max. Load Impedance: more than 20 k Ω 2 Headphone Jacks (1 ea. front/rear) 8 Ω
Input Jacks	4 Mic Input Jacks: 0.5 mV/50 k Ω 4 Line Input Jacks: 40 mV/100 k Ω
DIN Jacks	2 Output/Input DIN Jacks: 0.4 V/5 mV
Recording Capacity	4-channel stereo (30 min. at 7-1/2 ips using a 1,200 ft. tape) 2-channel stereo (1 hr. at 7-1/2 ips using a 1,200 ft. tape)
Motor	Hi-torque synchronous 3-speed motor
Semi-Conductors	19 Transistors; 6 Diodes
Integrated Circuits	3 Linear IC
Power Supply	AC 100 to 240 V; 50/60 Hz
Power Consumption	50 W
Dimensions	420 (W) x 450 (H) x 240 (D) mm (16-1/2" x 18" x 9-1/2")
Weight	15 kg (33 lbs.)

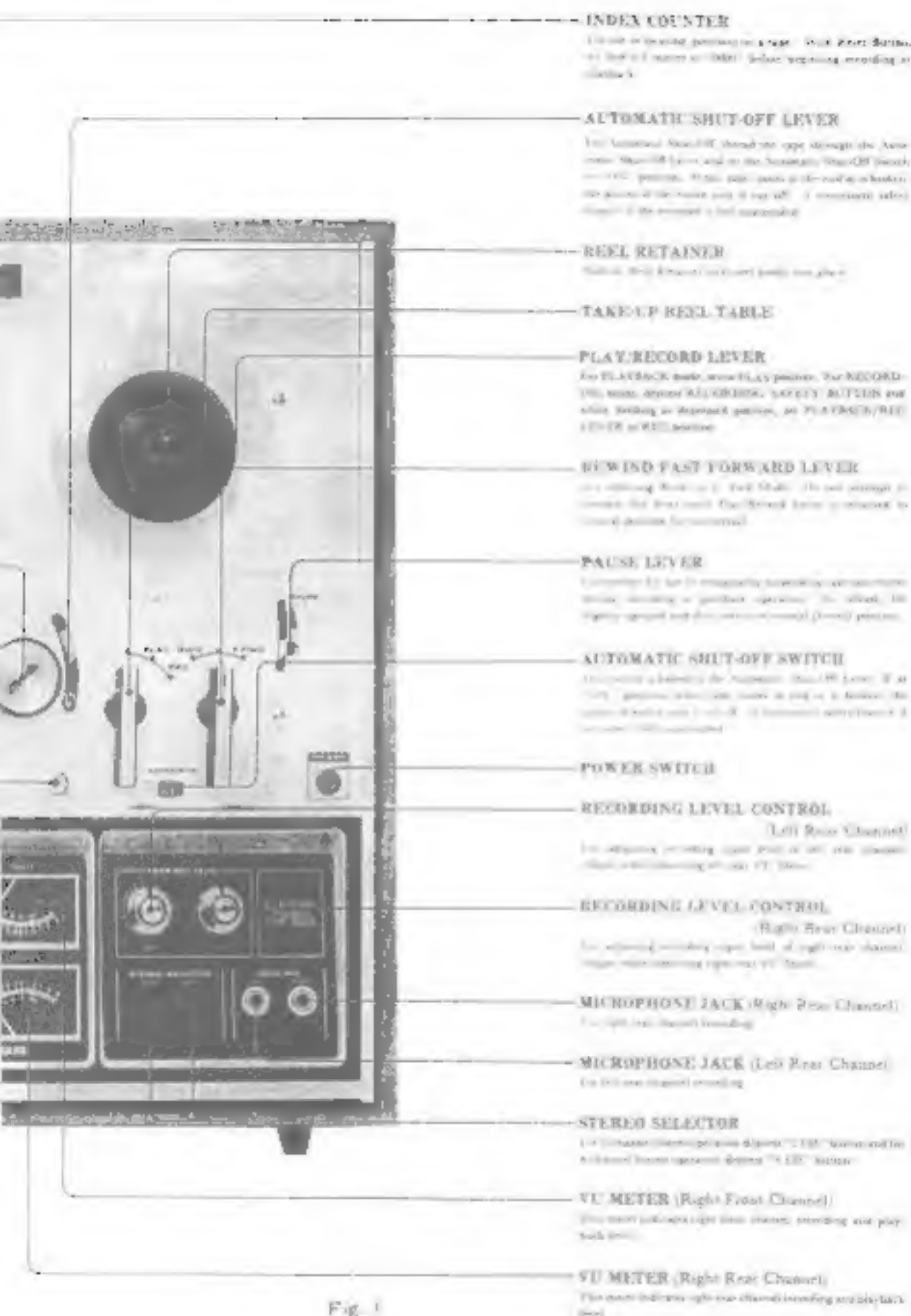


Fig. 1

DIN JACK (Rear Channel)

For stereo connection with external source capable of an
of a single DIN connection (e.g. (DIN) connector and
stereo amplifier).

LINE OUTPUT JACK (Right Rear Channel)

For playback (source in Tape form) (no external source
amplifier).

LINE INPUT JACK (Right Rear Channel)

For recording (source in (Source Jack (left) of external
recording source).

FUSE POST

VOLTAGE SELECTOR PLUG

For selection of voltage (110V/220V) (select 110V for
use in the U.S. and 220V for use in other countries).

AC CORD

CYCLE CONVERSION SWITCH (B)

This switch selects (1) automatic (2) manual (3) off. The
switch is set to automatic with any power source. The
switch is set to manual (3) if required.

LINE OUTPUT JACK (Left Rear Channel)

For playback (source in Tape form) (no external
amplifier).

LINE INPUT JACK (Left Rear Channel)

For recording (source in (Source Jack (left) of external
recording source).

LINE OUTPUT JACK (Right Front Channel)

For playback (source in Tape form) (no external
amplifier).

LINE INPUT JACK (Right Front Channel)

For recording (source in (Source Jack (right) of external
recording source).

DIN JACK (Front Channel)

For stereo connection with external source capable of
single DIN connection and (DIN) connector and
stereo amplifier.

LINE OUTPUT JACK (Left Front Channel)

For playback (source in Tape form) (no external
amplifier).

LINE INPUT JACK (Left Front Channel)

For recording (source in (Source Jack (left) of external
recording source).

Fig. 2

3 4-CHANNEL STEREO SYSTEM

■4-CHANNEL STEREO

In the continued pursuit of more aesthetical sound another stereo revolution has taken place. A new stereo "break-through" from 2-channel to 4-channel stereo.

This "break-up" to 4-channel stereo is equally as great an achievement as the advancement from monaural to 2-channel stereo. Just as 2-channel stereo sound reproduction means the advent of the dimensional sound, this epoch-making new system transcends the limits to pick up and reproduce just nature's full sound. New 4-channel uses 4 signal paths or sound tracks in the program material and at playback approximates the complexity of the sound waves which reach the listener's ear when attending a live outdoor hall performance.

For playback, 4 speakers are positioned to surround the listener. The sound from the front and rear speakers give the listener an exciting "sense of presence". With the 4 speakers each delivering separate sound, left & right in front and left & right in back of you, you are literally surrounded with a wall of sound which fills the "hole in the middle". This 4-dimensional reproduction makes conventional 2-channel stereo seem empty and insufficient.

■AKAI "SURROUND STEREO"

Exhibition of AKAI's 4-channel stereo system are already being held in various parts of the world and are being termed by the listeners as "SENSATIONAL". AKAI's surround stereo system uses conventional stereo's 2 front speakers with 2 additional rear speakers to form the "2-2 System". The listener is surrounded by two sets of speakers (left & right front and left & right rear). This arrangement does not mean, however, that merely adding two speakers to a 2-channel system is all that is necessary for 4-channel playback. At recording time, 4 microphones are used and sound is picked up from 4 separate places. Four separate recordings are made using 4 separate channels (all four tracks on one direction). Thus 4-channel stereo tape feeds into 4 preamplifiers and 4 main amplifiers to activate a 4-speaker system. Thus, at playback time, sounds from separate channels are emitted from each speaker, providing the listener with a feeling that he is listening to nature's full sound from the four way in the auditorium. If you are a jazz fan, for instance, you can record and position the speakers for playback so that the thundering big sounds are emitted from the left front speaker, drums from right front, piano from left rear, and bass from right rear. This arrangement gives the listener a real "sense of presence", creating an atmosphere in which you have the feeling of being exactly in the middle of the live performance.

II. OPERATING INSTRUCTIONS

1- 4-TRACK RECORDING PLAYBACK SYSTEM

The 44-60 STEREO has a 4-track stereo which can be used for either 4-channel or 2-channel stereo recording/playback. Tracks are marked by recording the STEREO TRACK SELECTOR signal.

4-Channel Stereo Recording/Playback

4-channel stereo recording/playback requires the 4-channel set of 44-60 tracks to be allocated. See Record Side on 44-60 for details.

2-Channel Stereo Recording/Playback

2-channel stereo recording/playback requires the 4-channel set of 44-60 tracks. The 44-60 tracks are "A-W" and are stereo channel signals. 44-60 4-track stereo recording/playback takes place on tracks 1 and 2, and the stereo 44-60 tracks 3 and 4 also accept stereo signals.

Refer to the following REEL-TO-REEL TABLE and the corresponding 44-60 REEL-TO-REEL TABLE. Consult the 44-60 Manual if you are unsure of Fig. 3.

Link cable connects with REEL-TO-REEL provided on 44-60 signal.

We want to thank you for your interest in the 44-60.

4-Track 4-Channel Stereo Tape

1	→	Front Left CH
2	→	Rear Left CH
3	→	Front Right CH
4	→	Rear Right CH

1	→	Left CH
2	→	Right CH
3	→	Right CH
4	→	Left CH

→ Left A → Left B

4-Track 2-Channel Stereo Tape

2- TAPE LOADING



Fig. 3

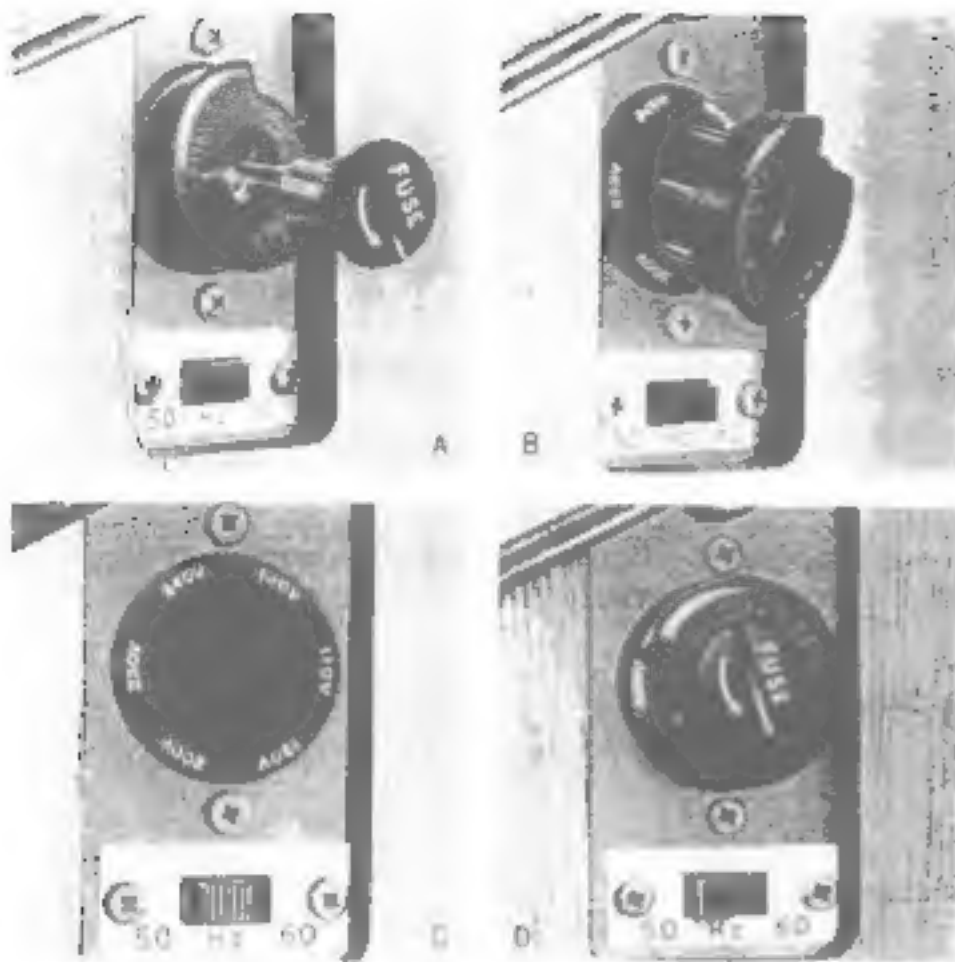


Fig. 4

3 VOLTAGE AND CYCLE CONVERSION

VOLTAGE

Model 1730D-SS is operable anywhere in the world. With the built-in step-down power transformer, the operator can easily readjust the recorder to any one of the six stages of power voltage from 100 to 240 volts A.C. The operator is requested to check the previously set voltage before operation. If another voltage is required, readjustment can be made as follows:

1. Remove the FUSE POST as shown in Fig. A. Remove VOLTAGE SELECTOR PLUG and insert in standard area voltage.
2. The VOLTAGE SELECTOR as shown in Figs. B, C, and D is a rotator plug-in type offering 6 voltages (100/110/120/200/220/240).

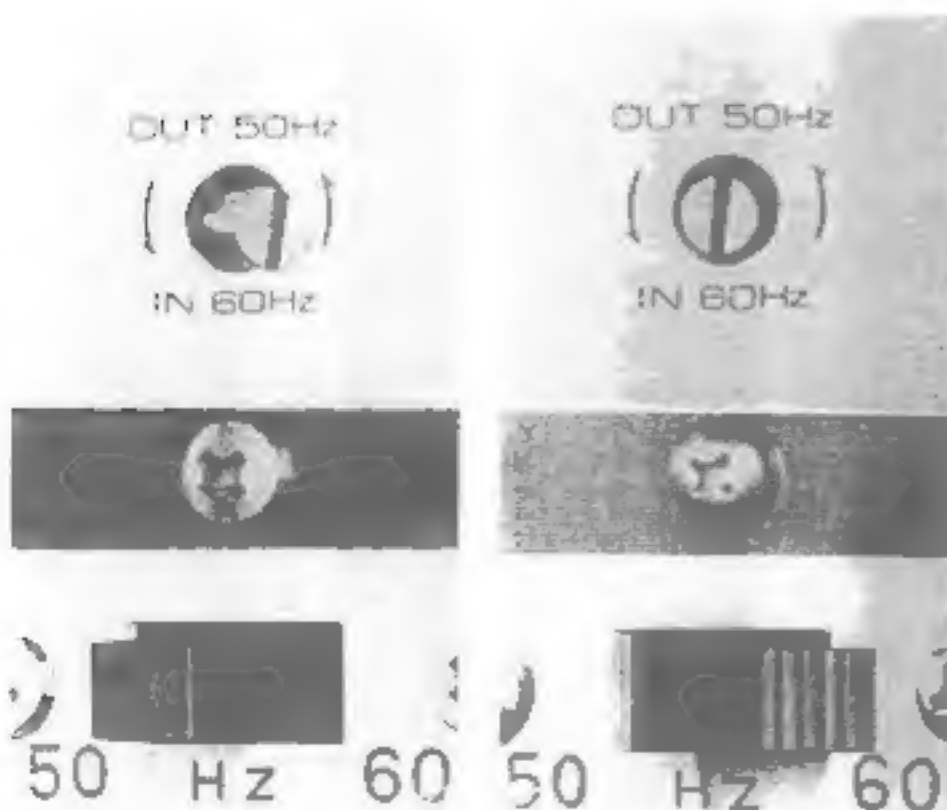


Fig. 5

CYCLES

Correct tape speed cannot be obtained if the CYCLE CONVERSION SWITCHES are not properly positioned. CYCLE CONVERSION SWITCH (A) is located on the upper corner of the face panel and (B) is located at the rear of the recorder. Using a screw driver, rotate CYCLE CONVERSION SWITCH (A) counter-clockwise approximately one-eight of a turn. The switch can then be moved either OUT or IN. 50 cycle operation is obtained by moving the switch OUT (Fig. A-1) and 60 cycle operation by moving the switch IN (Fig. A-2). The switch should be returned back to its original position after it has been moved to either IN or OUT position. CYCLE CONVERSION SWITCH (B) must also be reset accordingly.

CAUTION: Do not attempt to rotate the CYCLE CONVERSION SWITCHES when the recorder is not running.



Fig. 6

4- TAPE SPEED SELECTION

The 1700-SS Surround Stereo Tape Deck operates on two tape speeds (3 3/4 and 7 1/2 ips). Equipped with a convenient Tape Speed Selector for quick and convenient speed selection.

RECORDING TIME

Tape Length	TAPE SPEED			
	4-Track 4-Channel		4-Track 2-Channel	
	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)	9.5 cm/sec. (3-3/4 ips)	19 cm/sec. (7-1/2 ips)
1,200 ft.	1 hour	30	1	1
1,800 ft.	1.5	45	1.5	1.5
2,400 ft.	2	60	2	2



Fig. 7

5- PAUSE CONTROL

To momentarily stop the tape during recording, playback, or the PAUSE LEVER to "Pause" position (as shown in Fig. 7). PAUSE CONTROL will not function during fast forward or rewind operation.

PAUSE CONTROL is useful in holding the tape during recording (fill time or stop recording when a certain portion of the program is completed). Note that when the lever is released and recording again commences, no annealing "dash" is imposed on the tape.

6- AUTOMATIC SHUT-OFF

One of the exclusive features of Model 1700-SS is the function of the automatic shut-off. If the Automatic Shut-Off Switch is set to "ON" position, when the tape comes to the end or is accidentally broken, the AUTOMATIC SHUT-OFF LEVER drops, cutting off the power of the entire unit.

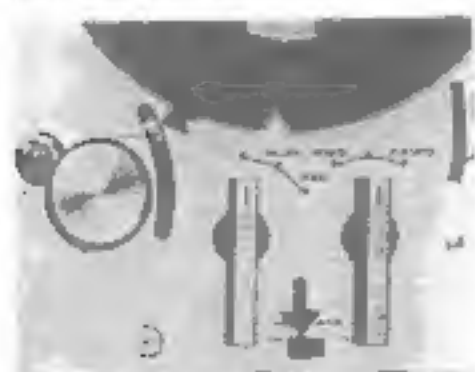


Fig. 8



Fig. 9

7- FAST FORWARD AND REWIND

Fast Forward or Rewind is performed by operating FAST FORWARD/REWIND LEVER. Fast Forward or Rewind permits rapid selection of recordings on the tape. FAST FORWARD/REWIND LEVER is automatically locked into position and cannot be operated while PLAYBACK LEVER is in operation and vice-versa.

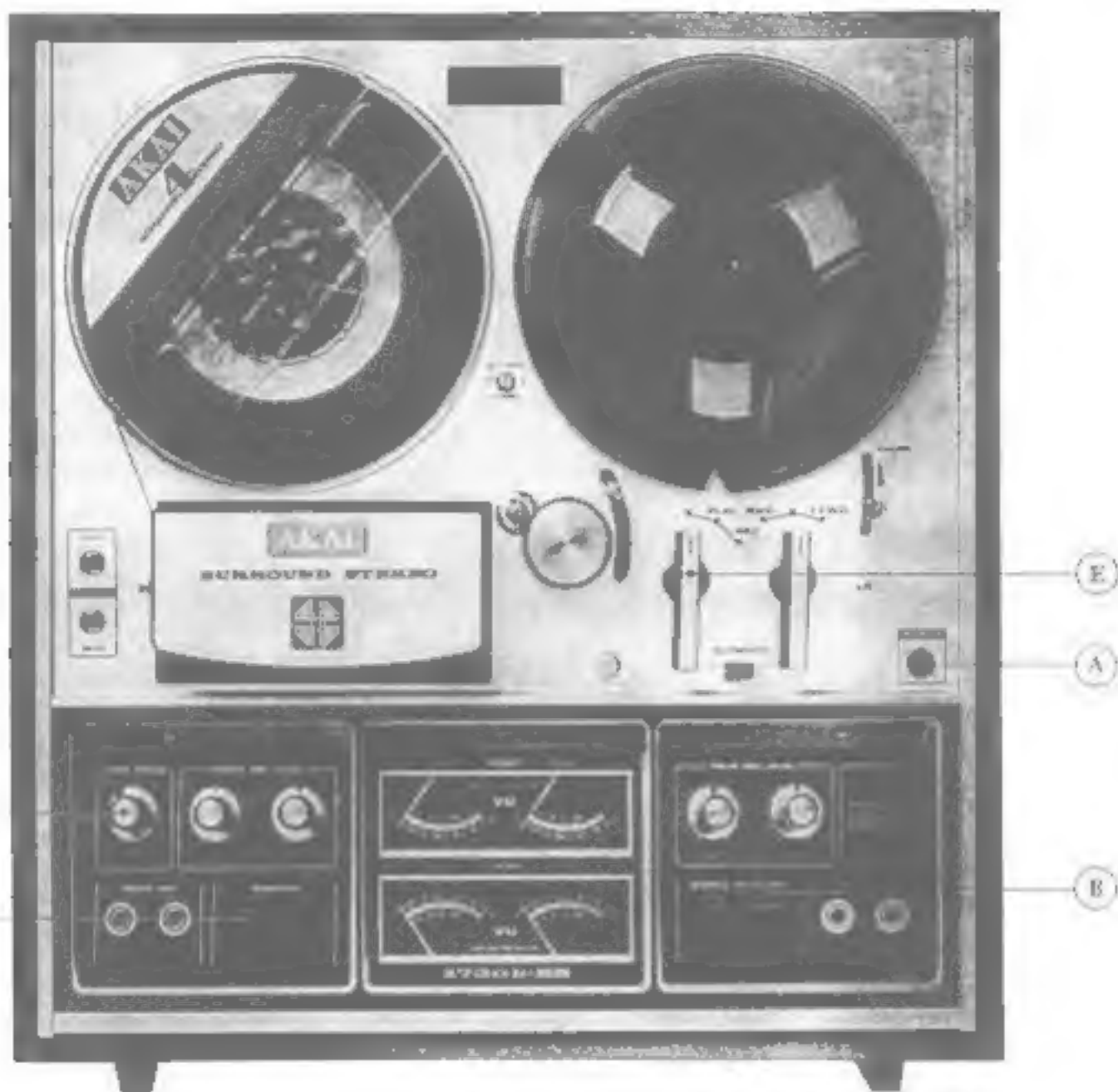


Fig. 10

STEREO PLAYBACK

Please refer to the following price list for details.

- Single price for each item of the
- As type which has not been used for a period of 10 years since the last time it was used.
- Type is listed separately.

4-CHANNEL SURROUND STEREO PLAYBACK



Fig. 11

Model TRD-55 Tape Deck contains an auto-reverse mechanism, 2 x 15,000 Hz. continuous bandwidth & automatic stereo channel separation with 4 speakers for maximum stereo separation. Connect FRONT & REAR CHANNELS LIVE OUTPUT JACKS to FRONT & REAR CHANNELS TAPE INPUT JACKS or connect to external amplifier and connect 4 speakers to the amplifier.

Connect power cord to wall socket & channel pre-recorded tape.

1. Turn on POWER SWITCH.
2. Depress 4 CH STEREO SELECTOR.
3. Select tape speed.
4. Depress TAPE MONITOR SWITCH.
5. Set PLAYBACK REC. LEVER to PLAY and adjust Volume Controls, etc. of external amplifier.

CONVENTIONAL 2-CHANNEL STEREO PLAYBACK

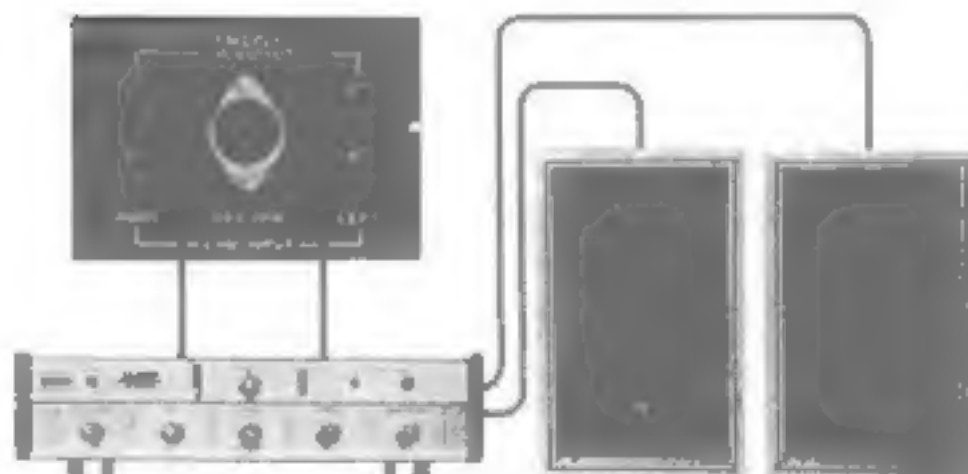


Fig. 12

Model TRD-55 Tape Deck contains an auto-reverse mechanism, 2 x 15,000 Hz. continuous bandwidth & automatic stereo channel separation with 2 speakers for playback. Connect 2 CHANNELS LIVE OUTPUT JACKS to FRONT & REAR CHANNELS TAPE INPUT JACKS or connect to external amplifier and connect 2 speakers to the amplifier.

Connect power cord to wall socket & channel pre-recorded tape.

Connect power cord to wall socket & channel pre-recorded tape.

1. Turn on POWER SWITCH.
2. Depress 2 CH STEREO SELECTOR.
3. Select tape speed.
4. Depress TAPE MONITOR SWITCH.
5. Set PLAYBACK REC. LEVER to PLAY and adjust Volume Controls, etc. of external amplifier.
6. Invert reels for playback on tracks 2 & 4.

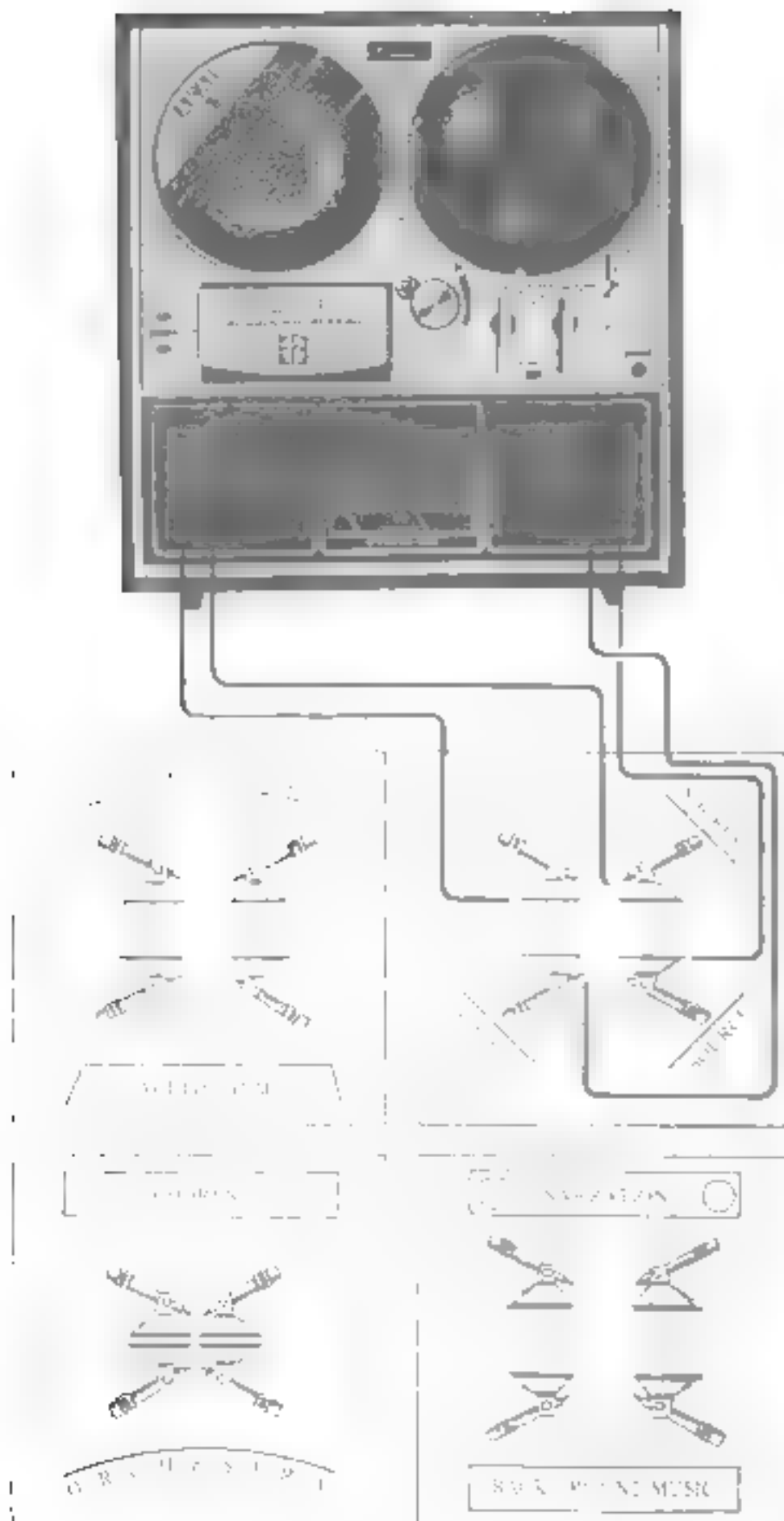
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☐ A
☐ B
☐ C
☐ D
☐ E



Two separate front and rear channel stereo Headphone jacks are provided for your convenience. In stereo 2-channel playback, use rear channel Headphone jack only. For mono listening, use Stereo Headphones at low impedance (e.g. 8Ω). (S/N Model ASE-22 is 16Ω impedance.)

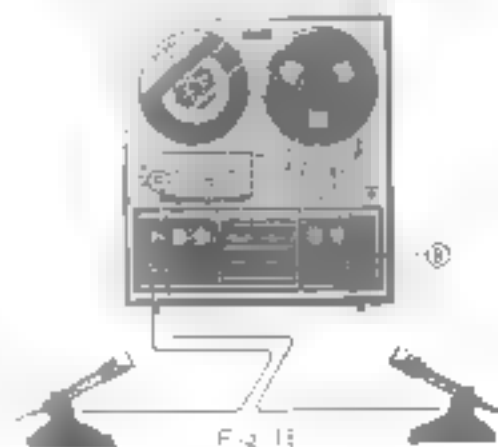


■ 44 CHANNEL SURROUND STEREO
RECORDING

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CONCLUSIONS AND REMARKS

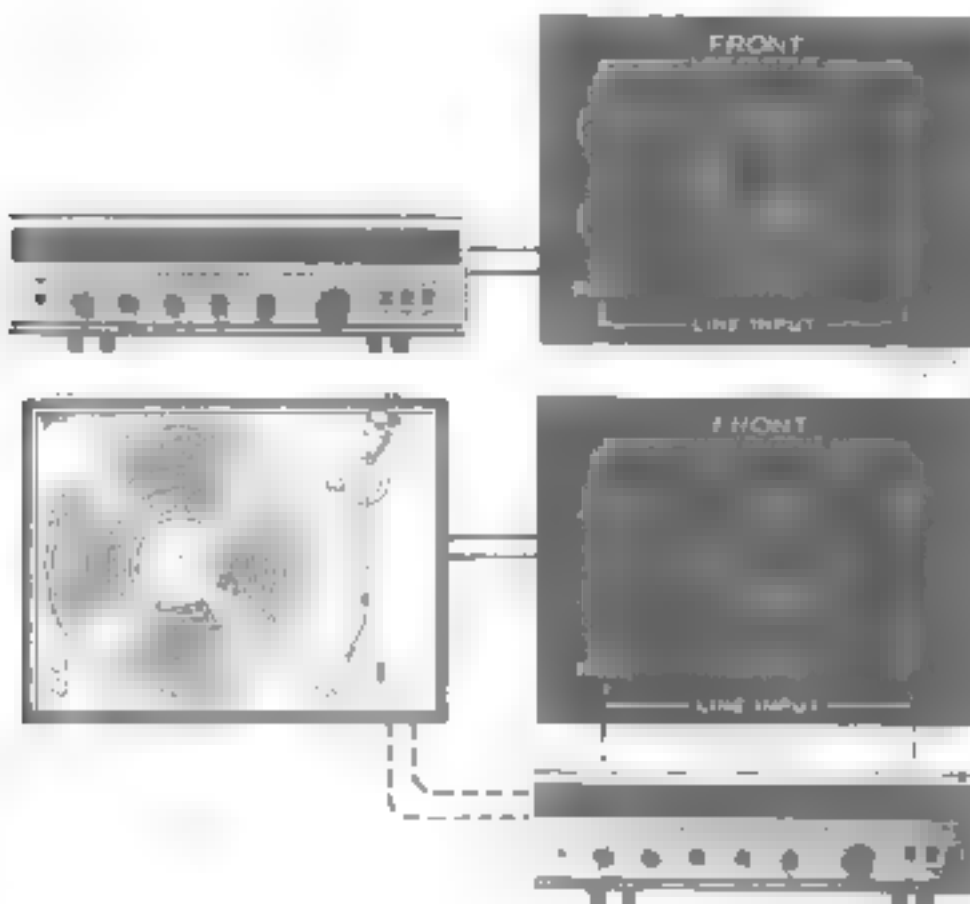
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RECORDING FROM OTHER EXTERNAL SOURCES

4-CANAL SURROUND STEREO RECORDING

For 4-channel surround recording, the 4-channel mode must be selected on the front panel of the OUTLINE. The 4-channel mode is selected by pressing the 4-CHANNEL button on the front panel of the OUTLINE. The 4-channel mode is selected by pressing the 4-CHANNEL button on the front panel of the OUTLINE.



From Another Tape Recorder

The OUTLINE can be connected to another tape recorder. The OUTLINE can be connected to another tape recorder. The OUTLINE can be connected to another tape recorder. The OUTLINE can be connected to another tape recorder.

Fig. 17



Fig. 18

Fig. 19

2-CHANNEL STEREO RECORDING

From an External Amplifier (Fig. 17)

The OUTLINE can be connected to an external amplifier. The OUTLINE can be connected to an external amplifier. The OUTLINE can be connected to an external amplifier. The OUTLINE can be connected to an external amplifier.

From a Record Player (Fig. 18)

The OUTLINE can be connected to a record player. The OUTLINE can be connected to a record player. The OUTLINE can be connected to a record player. The OUTLINE can be connected to a record player.

Fig. 17

Fig. 18

Fig. 19

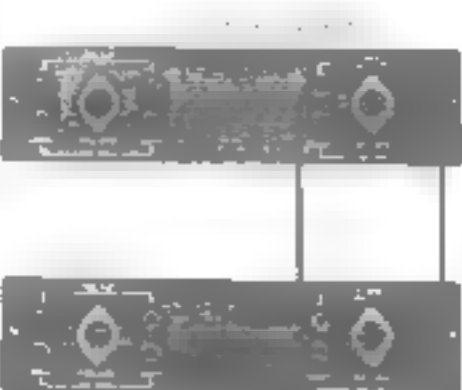


Fig. 19

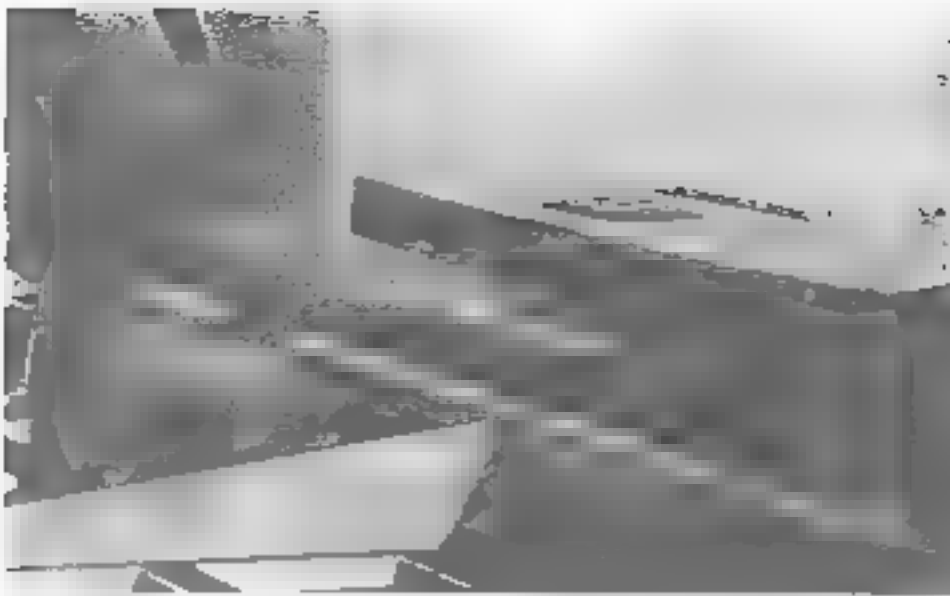


Fig. 24

11 HEAD CLEANING

Tape Slide Head Deposits Cause 90% of Tape Recording Failures

Low quality performance of a tape recorder depends on tape heads in good condition. Dust and magnetic particles from the tape head deposit on the heads after prolonged use of the recorder. This causes tape head-metal tape contact resulting in recording problems. Such dust causes erosion, drop in recording playback level, and other long-term damage.

Make a clean head on the heads every four to six hours recording. AGA's Head-Cleaning Kit cleans the 500-10000 rpm tape heads and removes debris from the head.

EXAMPLE



CLEAN HEAD

FREQUENCY RESPONSE CURVE



DIRTY HEAD



Fig. 25

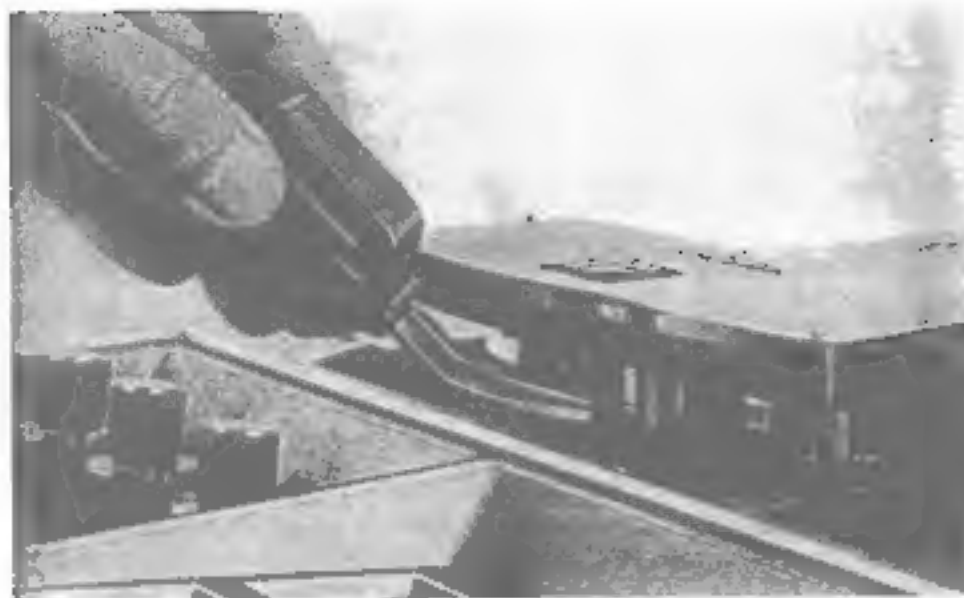


Fig. 24

12- HEAD DEMAGNETIZING

Normally the steel pole pieces which form a part of the Recording and Playback Heads become slightly magnetized. The effect of slight head magnetization is that it partially erases the tape, especially at high frequencies. Generally, this condition can be detected by the loss of high frequency response which cannot be corrected through head alignment. Severe magnetization (which may be caused by using magnetized tools in the vicinity of the heads) will result in noise or considerable distortion in addition to the loss of high frequency response. Although Model 1700-SS already has a built-in head demagnetizing circuit, it is recommended that head demagnetization be performed periodically. This can be accomplished by scrubbing the head lightly with the demagnetizer and making several small circular motions over all heads surface areas as well as the head housing.

NOTE: To avoid scratching the head surface, we suggest that you insert both plugs of the head demagnetizer with a sort of sawing type

13- TAPE ERASING

All signals previously recorded on the tape will be automatically erased as a new recording takes place. For erasing only, load tape and set recorder to recording mode. Model 1700-SS is equipped with separate 2-channel and 4-channel erase heads. For full track erase, set STEREO TAPE SELECTOR to "LCH" position and for 2-channel erase, set to "RCH" position. No plugs should be inserted in the line input jacks or microphone jacks. For quick and complete erasing the use of a both tape eraser is recommended.

14- TROUBLE SHOOTING CHART

The conditions listed below do not indicate mechanical failure of your unit. If your machine exhibits any of these conditions, check for trouble as indicated.

Loss of sensitivity and tone quality	<ul style="list-style-type: none">• Dirty Erase Head This prevents pre-recorded material from being completely erased.• Dust adhering to Recording Head For head cleaning instructions, see "HEAD CLEANING" procedure.• Magnetized Head For demagnetizing instructions, see "HEAD DEMAGNETIZING" procedure.• AC Power Voltage lower than the Voltage to which your machine is adjusted.
Irregularity of tape transport	<ul style="list-style-type: none">• Grease adhering to heads• Oil on capstan• Sticky or dirty tape surface• Bent Take-Up Reel
Will not record	<ul style="list-style-type: none">• Check position of controls and plugs at both Model 1130D-S5 and external Speaker.

Notes:

1. Your machine requires constant voltage for optimum performance.
 2. If the sound sources are so far away from the microphones that the recording level controls must be turned up to maximum, some hum or noise will inevitably be recorded. A test recording is recommended before attempting a final recording.
- Should there be any problem with your machine, please take it to our nearest authorized agent or inquire at our Service Dept. in Tokyo, Japan.

15- LUBRICATION

Although the motor of Model 1130D-S5 is sufficiently oiled for prolonged use, for maximum service and optimum performance, take your machine to your local authorized AKAI agent for occasional lubrication.

III - ACCESSORIES

I-STANDARD ACCESSORIES

7" Exchange Stereo Demonstration Tape	1
7" Empty Reel	1
Connection Card (DR-117)	1
Spare Fuses	1
Operator's Manual	1

CEI, CSA and IIT Standard models are not included with spare fuses.

2-OPTIONAL ACCESSORIES

HEAD DEMAGNETIZER

AM-2



Model for CSA Standard model

HEAD CLEANING KIT

HC-500



STEREO HEADPHONES



AS-18

TAPE SPLICER

AS-3



CONNECTION CORDS



SC-100

DYNAMIC MICROPHONES



Unidirectional UM-101

RM-130



AS-22



DM-13



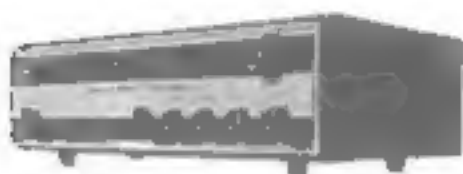
SC-180



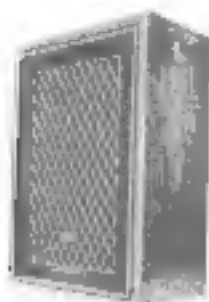
Model XA-6000
Solid State Stereo Pre-Amplifier



Model XA-6100
Superconducting Pre-Amplifier with 200



Model XA-6000B
Solid State CHASSIS Mounted Stereo Power Amplifier



Model SW-125
4-Way 7-Speaker System



Model SW-135
4-Way 4-Speaker System